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Air

TRIM

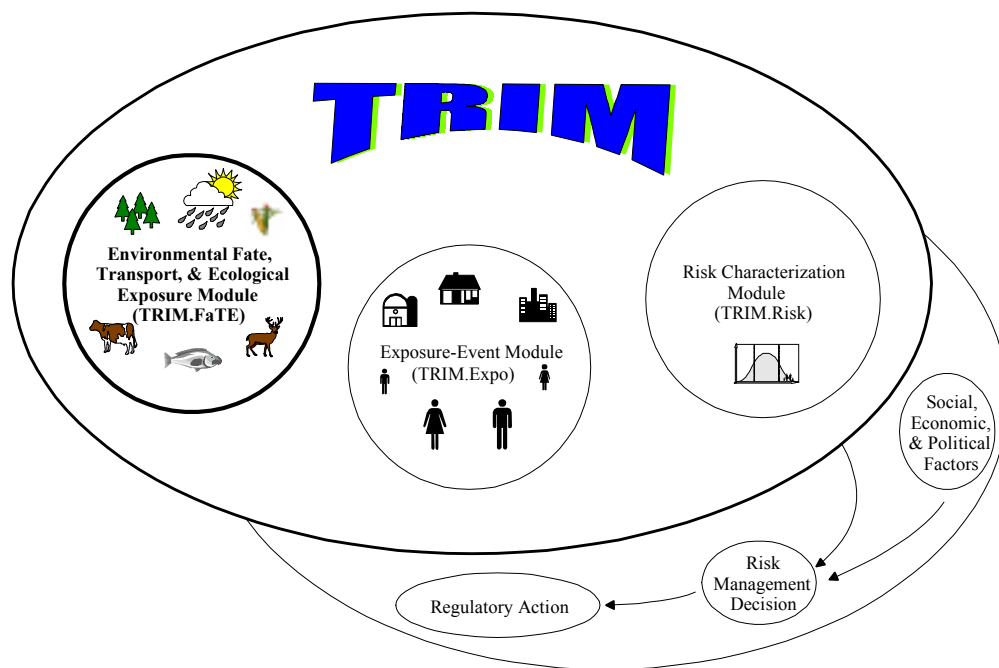
Total Risk Integrated Methodology

TRIM.FaTE

TECHNICAL SUPPORT DOCUMENT

Volume II: Description of Chemical Transport and Transformation Algorithms

EXTERNAL REVIEW DRAFT



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TRIM

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Volume II: Description of Chemical Transport and Transformation Algorithms

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
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PREFACE

This draft document, the *TRIM.FaTE Technical Support Document*, is part of a series of documentation for the overall Total Risk Integrated Methodology (TRIM) modeling system. The detailed documentation of TRIM's logic, assumptions, algorithms, equations, and input parameters is provided in comprehensive Technical Support Documents (TSDs) for each of the TRIM modules. The purpose of the TSDs is to provide full documentation of how TRIM works and of the rationale for key development decisions that were made. This report, which supersedes an earlier version (U.S. EPA 1998a), documents the Environmental Fate, Transport, and Ecological Exposure module of TRIM (TRIM.FaTE) and is divided into two volumes. The first volume provides a description of terminology, model framework, and functionality of TRIM.FaTE, and the second volume presents a detailed description of the algorithms used in the module.

To date, EPA has issued draft TSDs for TRIM.FaTE (this report) and the Exposure-Event module (*TRIM.Expo TSD*, U.S. EPA 1999a). When the Risk Characterization module (TRIM.Risk) is developed, EPA plans to issue a TSD for it. The TSDs will be updated as needed to reflect future changes to the TRIM modules.

The EPA has also issued the 1999 *Total Risk Integrated Methodology (TRIM) Status Report* (U.S. EPA 1999b). The purpose of that report is to provide a summary of the status of TRIM and all of its major components, with particular focus on the progress in TRIM development since the 1998 *TRIM Status Report* (U.S. EPA 1998b). The EPA plans to issue status reports on an annual basis while TRIM is under development.

In addition to status reports and TSDs, EPA intends to develop detailed user guidance for the TRIM computer system. The purpose of such guidance will be to define appropriate (and inappropriate) uses of TRIM and to assist users in applying TRIM to assess exposures and risks in a variety of air quality situations.

Comments and suggestions are welcomed. The OAQPS TRIM team members, with their individual roles and addresses, are provided below.

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ACRONYMS

B(a)P	Benzo(a)pyrene
BW	Body weight
DOC	Dissolved organic carbon
EPA	United States Environmental Protection Agency
GI	Gastrointestinal
GIS	Geographic Information Systems
HAP	Hazardous air pollutant
IEM	Indirect Exposure Methodology
LSODE	Livermore Solver for Ordinary Differential Equations
NERL	National Exposure Research Laboratory
OAQPS	EPA Office of Air Quality Planning and Standards
OPPT	Office of Pollution Prevention and Toxics
ORD	Office of Research and Development
OW	Office of Water
PAH	Polycyclic aromatic hydrocarbon
R-MCM	Regional Mercury Cycling Model
SAB	Science Advisory Board
TOC	Total organic carbon
TRIM	Total Risk Integrated Methodology
TRIM.Expo	TRIM Exposure-Event module
TRIM.FaTE	TRIM Environmental Fate, Transport, and Ecological Exposure module
TRIM.Risk	TRIM Risk Characterization module
TSD	Technical Support Document
WASP	Water Quality Analysis Simulation Program

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